“A COMPARATIVE STUDY OF ORGANIC AND INORGANIC FARMING IN BELAGAVI DISTRICT” (2012-13 TO 2022-23)

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Introduction :

Organic farming is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, genetically modified organisms and livestock food additives. To the maximum extent possible organic farming system rely upon crop rotations, use of crop residues, animal manures, legumes, green manures, off farm organic wastes, bio-fertilizers, mechanical cultivation, mineral bearing rocks and aspects of biological control to maintain soil productivity and tilth to supply plant nutrients and to control insect, weeds and other pests.

Organic methods can increase farm productivity, repair decades of environmental damage and knit small farm families into more sustainable distribution networks leading to improved food security if they organize themselves in production, certification and marketing. During last few years an increasing number of farmers have shown lack of interest in farming and the people who used to cultivate are migrating to other areas. Organic farming is one way to promote either self-sufficiency or food security. Use of massive inputs of chemical fertilizers and toxic pesticides poisons the land and water heavily. The after-effects of this are severe environmental consequences, including loss of topsoil, decrease in soil fertility, surface and ground water contamination and loss of genetic diversity.

Keywords: organic, inorganic farming, training, equipments used

What is Organic Farming?

- Organic farming is the production of crops and livestock without the use of synthetic chemicals and inorganic fertilizers.

- Organic agriculture aims at the human welfare without any harm to the environment which is the foundation of human life itself.

Definition of Key Concepts :

- **Organic Farmer:** A farmer may be defined as 'Organic Farmer' provided he/she adheres to and practices the following three essentialities of organic farming, a farmer who practices mixed farming including food crops, a farmer who ensures the conservation of soil and water and a farmer who conserves the biodiversity of the farmland.

- **Mulching:** Mulching is the process of covering the topsoil with plant material such as leaves, grass, twigs, crop residues, straw etc.

- **Green Manuring:** The practice of growing a leguminous plant species for biomass production and incorporation into the soil may be new to most farmers. Nevertheless, this practice can greatly contribute to improvement of soil fertility.

- **Organic Pest Management:** It is a Careful associations and management of plants and animals in order to prevent pest and disease outbreaks.

- **Intercropping:** Growing two annual crops together

- **Degraded Land:** Land may be degraded due to shifting cultivation, overgrazing, over-cultivation or deforestation, salinity after years of intensive irrigation with ground water, or water logging and flooding

Objectives of the Study :

1. To examine trend and pattern of organic and Inorganic farming in Belagavi district.
2. To analyze the Government initiatives to organic farming
3. To analyze the constraints faced by the organic farmers in Belagavi district.
4. To evaluate the socio-economic status of the organic farmers in selected talukas in Belagavi district.
5. To focus on Future of organic farming in Belagavi district.

Hypothesis :

1. Organic farming improves our health.
2. Organic farming protects environment.
3. Organic farming improves economic condition of farmers.
4. Output from the Organic farming lesser than the Inorganic farming.
5. Demand for Organic products increasing.

Review of Literature:

Creating a sustainable agricultural development path means improving the quality of life in rural areas ensuring enough food for present and future generations. The main aim of agricultural development is the improvement of material and social welfare of the people; therefore, it is often seen as integrated approach to improving the environment and wellbeing of the people of the country. The first step in the process of agricultural development is abandoning the view of agriculture in pre-modern or traditional societies as essential static. The problem of agricultural development is not that of transforming a static agricultural sector, but of accelerating the rate of growth of agricultural output and productivity consistent with

the growth of the other sectors of a modernizing economy. A theory of agricultural development should provide insights into dynamics of agricultural growth, either into the changing source of growth. In view of the context of organic farming, there are about Five agriculture general models in the literature on agricultural development.

The available literature on Organic and Inorganic farming related literature with us would be put to review and examine their relevance to our present study. For example, the growth of organic farming as compared to Inorganic farming in Belagavi district and also to analyse cost and Benefits. Government policies, Documents of various Ministries, Research papers, Planning Commission Website, Reports, Experts blogs, NSSO and CSO Reports, News papers etc. are to be attempted and studied the relevant topics.

Theoretical Literature :

1. Land Use Pattern and Agricultural Production :

The organization of farms varies because of differences in physical, economic and cultural factors though they have something in common as well (Mellor, 1966). The two prominent factor inputs for agricultural production are land and labour and the farmers have an inclination to increase the size of their farm because they can add to their income more than what they will get by applying more labour to the existing farm and the productivity of labour increases. Rent not only varies with its fertility, whatever its produce, but with its situation, whatever be its fertility and it is a residually determined distributive share in terms of most common agricultural produce of the country and levels of rent vary with intensities of Land Use and that both rent and land use varied with distance (Smith,1776).Rent is that portion of the produce of the earth which is paid to the Landlord for the use of the original or indestructible powers of the soil‖. The definition clarifies that land possesses original permanent powers which are related to the natural ecosystem with a protection of environment. Rent arises from the extensive, intensive cultivation as well as the regionalisation of the existing land. Each increase in population results in increasing

demand for land and necessitates cultivation of progressively inferior quality lands (Ricardo, 1817).

2. Nature of Agriculture and Production :

Traditional agriculture occurs if and only if, the state of art of cultivation remains constant and where the farmers use the same factors of production and same procedure of production that their forefathers were doing. Considering the new factors as well as extended factors as constant or given, the farmers, by their experience, can expect an unchanging pattern of net returns which will encourage production and can attain equilibrium where cost of each factor is equal to marginal returns from each factor. If the art of cultivation and motives and preferences to hold the productive assets remain static, then the disequilibrium, if occurred is only temporary. Any permanent deviation towards disequilibrium cannot make agriculture traditional. If equilibrium is disturbed due to price changes, cost reductions, making changes in the costs or the marginal returns, the particular temporary disequilibrium can be restored after sometime at some other level. With the static art of agriculture, there exists neither misallocation of resources nor the existence of unused resources, especially in agriculture. Since they are utilizing the resources in the proper manner without any misallocation, the farmers can earn their maximum income, but may be a lower or equivalent income when compared with other agriculture progressing countries. The particular concept is called as Efficient but Poor Schultz (Schultz, 1964).

3. The High Payoff Input Model :

The inadequacy of policies based on the conservation, urban-industrial impact and diffusion model led to a new perspective in the 1960s. The key to transforming traditional agricultural sector into productive source of economic growth is an investment designed to make modern, high pay off inputs available to farmers in poor countries. Peasants, in traditional agricultural systems were viewed as rational, efficient resource allocators. They remained poor because in most poor countries

there were only limited technical and economic opportunities to which they could respond. According to Ruttan, the new high payoff- off inputs were classified into three categories a) The capacity of public and private sector research institutions to produce new technical knowledge b) The capacity of the industrial sector to develop, produce and market new technical inputs. c) The capacity of farmers to acquire new knowledge and use of new inputs effectives. The enthusiasm with which the high pay off input model has been accepted and translated into economic doctrine has been due in part to the proliferation of studies reporting high rates of returns to public investments in agricultural research. The high return associated with the adoption of new varieties and the associated technical inputs and management practices have led to rapid diffusion of the new varieties among the farmers in several countries. The model remains incomplete as a theory of agricultural development. However the education and research are public goods not traded through the market place. The mechanism by which the resource is allocated among education, research and alternative public and private sector economic activities are not fully incorporated into the model (Schults, 1964)

4. The Urban-Industrial Impact Model :

In the conversion model, location variations in agricultural development were related primarily to differences in environment factors. It stands in sharp contrasts to models which interpret geographical differences in the level and the rate of economic development primarily in terms of the level and the rate of economic development. Initially, the urban industrial impact model was formulated to explain geographical variations in the intensity of farming system and productivity of labour in an agricultural society. Later this model was expanded to explain the more effective performance of the factor and products markets linking the agricultural and nonagricultural sectors in regions characterized by urban industrial development .The model has been tested extensively in the limited states but has received only limited attention in the less developed world (Club at Rome, 1972).

5. The Conservation Model :

The conservation model of agricultural development evolved from the advances in crop and livestock in crop and livestock husbandry associated with the English agricultural revolution and the concepts of soil exhaustion suggested by the early German chemists and soil scientists. The conversion model emphasized the evolution of a sequence of increasing complex and labour intensive cropping system, the production and use of organic manures and labour intensive capital formation in the form of physical facilities to more effectively use land and water resources. This model was the only approaches to intensification of agricultural development that was available to most of the world's farmers. The agricultural development within the ambit of the conservation model clearly was capable in many areas of the world of sustaining rate of growth in agricultural production around1.0% year over relatively long periods of time .This rate is not compatible with modern rates of growth in the demand for agricultural output which typically fall between 3-5% in the developing countries (Von Thunen, 1826).

6. The Frontier Model :

The history expansions of area cultivated or grazed in the western countries has represented the main way of increasing agricultural production. However, the most dramatic example in western history was the opening up or creation of the new continents – North and South America and Australia to European settlement during the 18th and 19th centuries. In earlier times, similar processes had proceeded, through at a less dramatic pace, in the peasant and village economies of Europe, Asia and Africa. Intensification of land use in existing villages was followed by pioneer settlement the establishment of new villages and the opening up of forest or jungle were a serious of successive change from Neolithic forest fallow to systems and in recent years b annual cropping. When the soil condition was favourable as in the great river basins and plains new villages are gradually intensified their system of cultivation. While where soil where poor ,as in many of the hill and upland areas, new areas were opened up to shifting cultivation to nomadic grazing (Perkins, 1829).

As a result of population growth, the model did not last the main limitation of the Frontier models were quickly reached. Crop yields were typically low measured in terms of output per unit of seeds rather than per unit's crop area. Output per hectare and per man tended to decline expect in the Delta areas such as in Egypt and South Asia and wet rice area of the East Asia.

7. Cob-web Theorem and Organic Farming :

The agricultural commodity under consideration is harvest annually, and consumed during two seasons. The production decision is made by the representative farmers/producers in season. The storage decision is made by a representative marketer during both seasons. The quantity planted by the farmer in autumn is available for sale to the marketer. The market is segmented into a local market sells the commodity to the marketer and a central market where the marketer sells the commodity to consumers. This scenario is especially relevant for developing economies. Where production and consumption are geographically dispersed and where transport infrastructure limited. It is also plausible for some regions of developed countries (Bobenenrieth and Wright,2006). In addition, the effects of storage on price variation are mixed. In the presence of inter annual storage, chaotic price series show less variation compared to a situation without inter annual storage. Storage contributes to the endogenous volatility of prices by making chaotic dynamics more likely. Cobweb theory is the idea that price can lead to changes in supply which causes a cycle of running and falling price in agricultural market where supply can vary due to variable factors(Empler,1990).

Empirical Literature

There has been a splurge in organic farming literature in last decade. The literature can be broadly classified as (i) Those dealing with the problems of modern agriculture and suggesting alternative systems such as organic farming (ii) Those expounding the principles and practices of organic farming (iii) Those which study the different elements such as effect of bio-inputs studied on comparative yields. The

reconciliatory to me can be understood in the emergence of new terminology and practices like sustainable agriculture.

1. Organic farming is a gaining momentum due to increasing concerns of global food crisis, global warming and health concerns from Genetically Modified Organisms (GMO). The World Market for organic food has been shown consistent straits for over 15 years.

2. The article "Two concept of sustainability evolution of organic farming" 2002 by Ki-Huengkim discusses how to evaluate organic farming via two concepts of sustainability namely capability sustainability (which includes environmental, social and human aspects) and economic sustainability by highlighting the experiences of organic farming in Japan, Korea and Thailand. The article also discusses two types of organic farming- large scale and profit or landed and small scale and environmentally aware.

3. Albert Howard's An Agricultural Testament, first published in 1940, could be said to have marked the origin of modern organic farming in the west. It championed a type of agriculture, which emphasized feeding the soil through compost, the approach is holistic, rather than analytic lands, farmer, food and consumer compose a whole system. It is based on Howard's experiments while in India 1990's when he developed the composting techniques described there in. It is possible that the borrowed the idea from Indian farmers.

4. Masa noba Fukoka (1985) is the work "One Straw Revolution" indicates four basic principles of natural farming. They are (1) No plunghing, (2) No chemical fertilizers, (3) No weeding,(4) plant protection. In addition, 2000 United Nations Report commonly referred to as the World Agricultural Report, concluded that the world must move away from chemical dependent, industrial agriculture towards sustainable farming.

5. Robert C. Oelhalf's organic agriculture (1978) is a watershed in the history of organic farming because it is one of the earliest works that has analyzed organic farming using the conventional scientific methodology.

6. Francis Blake's organic farming and growing (1987) is a comprehensive hand book on organic husbandry outlying principles of organic agriculture, giving advice to those considering going organic and step by step guide to conversion.

7. Organic agriculture is new practiced in almost all countries of the world and it is the share of agriculture land and forms is growing the total organically managed area is more than 22 million hectares worldwide. The market of organic products is growing not only in Europe and North America but also in many other countries including many developing countries official interest in organic agriculture is emerging in many countries (Yusseli and Mitscke, 2003).

8. Organic Farming as a Part of Environmental Protection:

Healthy and safe environment is the main factor in life quality. Globalization of food chains leads to new challenges and risks for human health and environmental protection. Organic farming is one of the alternatives in a future sustainable development as an approach based on a system of processes leading to ecosystems' sustainability. In organic farming, natural resources and energy are used with a greater responsibility, biodiversity is kept, soil fertility is being conserved and improved, human attitude towards animals concerning their specific needs is paid attention, water quality is enhanced and as a whole ecological balance is maintained. Organic farming as a way of thinking and as a practice is not a new thing but in last years its importance and use are growing not only because of the new European and national policies and opportunities for farmers. Motivation for organic farming varies from own health concern via consumer confidence to planet ecological balance concern. In this paper organic and conventional agriculture are compared in respect to environmental protection considering water, soil, biodiversity and landscape

preservation and the advantages and opportunities of organic are underlined. The northeastern region of India provides considerable scope and opportunity for organic farming due to least utilization of chemical inputs. It is estimated that 18 million hectare of such land is available in the North-East, which can be exploited for organic production. With the sizable acreage under naturally organic/default organic cultivation, India has tremendous potential to grow expanding and includes novel, edible, fiber and processing crops, diversified rotations and large scale stockless farming companies alongside traditional mixed organic farms. Organic farming is just one of many practices that promote environmental health and conservation. By choosing organic, you're choosing the health of the environment, the economy, the future and your wellbeing. (Prakash Chougala, 2023).

Methodology of the Study :

As the objective of the study is to understand the organic and Inorganic farming in Belagavi district. is through measuring efficiency and functioning of the selected Organic farming units in selected talukas in Belagavi district. Primary and secondary data are used for the study.

1. Primary data :

Primary data collected from the organic and Inorganic farmers in the sample taluks in Belagavi. Out of 14 taluks in Belagavi seven Five are rationalized. Those talukas which are actively involved in the in the promotion of organic farming. The total sample size is One hundred and Well-structured interview schedule is used to collects information from the farmers. The study has two main components as under.

1) The survey of selected organic and Inorganic farmers in sample taluks.
2) A structured questionnaire is used to collect the information from the organizers of the farming units to gather the information related to the demand and market behavior of the organic products.

Questionnaire survey was followed by visit to selected farmers from the organic units. Periodical visit were made to the farm covering on season of

agricultural activities in the farming units. The qualitative data collected through direct observation and verification of farm records in available.

1) To record the problems faced by organic farmers and the recommendations by them
2) Assess the profitability productivity and viability of the organic farming units,

2. **The secondary data:**

The secondary data collected from the books and journals, internets, and other published sources. Along with simple statistical and mathematical tools Time-series analysis and multivariable linear regression model also will be used to analyze collected data. The performance of organic farming is measured through the measuring technical efficiency in production. In addition to this a non-parametric alternative to one way ANOVA was also used to analyse the variables in ordinal level.

Importance of the Study:

Organic farming was practiced in India since thousands of years. The great Indian civilization thrived on organic farming and India was one of the most prosperous countries in the world, till the British ruled it. In traditional India, the entire agriculture was practiced using organic techniques, where the manure, pesticides, etc., were obtained from plant and animal products. The cow, not only provided milk, but also provided bullocks for farming and dung which was used as manure. During 1950s and 1960s, the ever increasing population of India and several natural calamities lead to a severe food scarcity in India. As a result, the government was forced to import food grains from foreign countries. To increase food security, the government had to drastically increase the production of food in India. The Green Revolution (under the leadership of M. S. Swaminathan) became the government's most important program in the 1960s. Large amount of land was brought under cultivation. Hybrid seeds were introduced. Natural and organic fertilizers were

replaced by chemical fertilizers and locally made pesticides were replaced by chemical pesticides. Large chemical factories such as the Rashtriya Chemical Fertilizers were established. During twenty – first century the focus of agricultural research, and the majority of publicized scientific findings, have been on chemical, not organic farming. This emphasis has continued to biotechnologies like genetic engineering. One recent survey of the UK's leading government funding agency for bioscience research and training indicated 26 GM crop projects, and only one related to organic agriculture. This imbalance is largely driven by agribusiness in general, which, through research funding and government lobbying, continues to have a predominating effect on agriculture-related science and policy. Agribusiness is also changing the rules of the organic market. The rise of organic farming was driven by small, independent producers, and by consumers. In recent years, explosive organic market growth has encouraged the participation of agribusiness interests. As the volume and variety of "organic" products increase, the viability of the small-scale organic farm is at risk, and the meaning of organic farming as an agricultural method is ever more easily confused with the related but separate areas of organic food and organic certification.

The failure of new agricultural strategy in enhancing agricultural production has led to the popularization of sustainable agriculture which is an application of the concept of sustainable development. Enhancing agricultural productivity together with maintenance and improvement of environment and living condition is the main feature of sustainable agriculture policy measures for sustainable agriculture policy measures for sustainable agriculture are dry land farming, rain fed agriculture, rain water harvesting, better crop rotation techniques, conservation agriculture and balanced use of fertilizers and organic forming. There are many things in common for new agricultural strategy and sustainable agriculture. High degree of pesticides consumption in the agricultural lands of Kerala causes to the harmful effects of environment. These harmful effects of conventional farming leads to negative impact on the human life in the present and future-generations as well.

- **International status:**

Area under cultivation of organic farming throughout the word is 72.3 million ha in 2019 which is 1.5% of the total area under agricultural. There are about 187 countries in the world promoting organic farming in their nation but farmers are struggling due to poor policy measures, rising input costs and limited market (ASSOCHAM – Associated Chambers of Commerce and Industry of India). Australia (35.7 million hectare) ranks first as per as area under cultivation of organic farming is concerned, it is followed by Argentina (3.7 million hectare) and Africa (2.4 million hectare) India ranks first number of producers is concerned (FiBL (The Research Institute of Organic Agriculture) report, 2021.

- **National status:**

Sikkim was declared India's first organic state in 2016 for adopting organic farming in a big way, In India organic farming is in a nascent stage. According to the Union Ministry of Agriculture and Farmers' Welfare about 2.78 million hectare of farmland was under organic cultivation as of March 2020. This is 2% of the net sown area in the country (140.1 million ha).

Proposed Work Plan :

- Collection of Books
- Visiting to Libraries
- Basic data collection
- Visiting to Organic and Inorganic farm fields

Limitation of the study:

1. This study is restricted to limited areas of Belagavi district.
2. This study is strictly limited to Organic and inorganic farmers and selected crops in Belagavi district.
3. There is Limited numbers of Organic farmers in Belagavi district.

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